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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/309,264	05/11/1999	YUKIJI YODA	P7292-9003	7284

7590

04/14/2003

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EXAMINER

DEJESUS, LYDIA M

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/309,264	YODA ET AL.	
	Examiner	Art Unit	
	Lydia M. De Jesús	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 May 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osburn et al. [U.S. Patent 3,825,245, cited in form PTO-892 attached to Paper No. 8, hereinafter Osburn] in view of Matsumiya et al [hereinafter Matsumiya].

Osburn discloses a machining tool having an auto pallet changer means [44] for moving a work between a waiting position [47B] and a machining position [32] at an inlet of said machining tool.

Osburn fails to disclose a coordinate-measuring device for bringing a probe thereof close to said work in said waiting position of said auto pallet changer, directly after said work is machined by said machining tool and placed on said waiting position, to thereby measure the forms and dimensions of said work.

However, Matsumiya teaches bringing a probe of a coordinate measuring machine [201], shown in Figure 14, close to a work on the table [217] of a machining tool [215] to thereby measure the forms and dimensions of said work.

Matsumiya also teaches the use of a movable carriage [211] as the support member the coordinate measuring device, in a broad sense, said movable carriage is considered a refuge means and it is considered that the coordinate measuring machine is capable of taking refuge in a

Art Unit: 2859

linear or rotational motion i.e., by moving the movable carriage away from the machining center, to such a position as that said coordinate measuring machine does not prevent said work from moving.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a coordinate measuring machine with a refuge means to the machining tool disclosed by Osburn for bringing a probe thereof close to the work on the waiting position [47B] of the pallet changer disclosed by ^{Osburn} ~~EP1160053-A2~~, as suggested by Matsumiya, in order to measure the work directly at the machining site in real time to prevent the production of inferior goods (see Col. 14, lines 43-48). 07/30/08

With respect to claim 12: The apparatus resulting from the combination of Osburn and Matsumiya comprises a coordinate measuring machine, disposed in the vicinity of a machining tool, and capable of getting a probe thereof close to a work in a waiting position of an auto pallet changer, directly after said work is machined by said machining tool and placed in said waiting position, to thereby measure the forms and dimensions of said work.

With respect to claim 1: Osburn also discloses that after the machining operation is completed for the work in the machining position [32] the pallet changer replaces the pallet in the machining position [32] with the pallet on the waiting position [47B] and the work which has been machined is replaced with the next work to be machined during the current machining operation (see lines 44-59 of column 8). Moreover, since the coordinate measuring machine of apparatus resulting from the combination of Osburn and Matsumiya measures the dimensions of the work in the waiting position [47B] prior to the machined work being taken out of the machining site, in a broad sense, it is considered that the step of measuring will occur during the

Art Unit: 2859

current machining operation or while simultaneously machining the other work. Therefore, it is considered that the steps recited in claim 1 are performed during the normal operation of the apparatus of the combination of Osburn and Matsumiya.

With respect to claims 2-3: Matsumiya also shows that both the machining tool and probe of the coordinate measuring machine move toward said work in the same direction of motion. In the case of Matsumiya both the machining tool and the probe of the coordinate measuring device are vertically oriented. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to select a coordinate measuring machine with a probe having the same direction of motion as the machining tool of Osburn for the combination of Osburn and Matsumiya, as taught by Matsumiya, such that the displacement commands provided to the machine tool and the displacement data provided by the coordinate measuring machine correspond to parallel frames of reference thereby simplifying the analysis and correlation of said data. The resulting apparatus will perform, during its normal operation, the step of moving said probe of said coordinate measuring machine and said machining tool toward said work in the same direction of motion i.e., horizontally.

With respect to claim 4: The coordinate measuring machine of the apparatus resulting from the combination of Osburn and Matsumiya is capable of taking refuge to such a position as that said coordinate measuring machine does not prevent said work from moving, by means of the movable carriage provided as the support member of the coordinate measuring machine and considered to be a refuge means, as discussed above.

Art Unit: 2859

3. Claims 3, 6-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osburn in view of Matsumiya as applied to claims 1-8 and 12 above, and further in view of DE004126532 A1 (cited on Form PTO-892 attached to Paper No. 6).

The limitations of claims 3 and 6-7 are considered obvious over the combination of Osburn and Matsumiya as stated above in paragraph 2.

However, as alternate grounds for rejecting claims 3 and 6-7 as unpatentable it is noted that: Matsumiya shows that both the machining tool and probe of the coordinate measuring machine move toward said work in the same direction of motion, as discussed above. In the case of Matsumiya, both the machining tool and the probe of the coordinate measuring device are vertically oriented but DE004126532 A1 shows that a coordinate measuring machine with a probe having a horizontal direction of motion i.e., mounted horizontally, are also very well known in the art.

DE004126532 A1 also shows in the embodiment of Figure 10 that the Y displacement mechanism will cause the probe to retract in linear motion from the measuring area and hence, in a broad sense, this mechanism is considered a refuge means causing said coordinate measuring means to take refuge with linear motion to such a position as that said coordinate measuring machine does not prevent said work from moving.

Therefore, at the time the invention was made one of ordinary skill in the art would consider an obvious modification of the apparatus of the combination of Osburn and Matsumiya to select a coordinate measuring machine having a probe with the same direction of motion as the machining tool of Osburn, as taught by Matsumiya, said coordinate measuring means

Art Unit: 2859

including a refuge means, as taught by DE004126532 A1, in order to simplify the analysis and correlation of the data and to prevent damage to the probe during displacement of the work.

The resulting apparatus will hence perform, during its normal operation, the step of moving said probe of said coordinate measuring machine and said machining tool toward said work in the same direction of motion i.e., horizontally.

With respect to claim 11: DE004126532 A1 also teaches that it is very well known in the art to provide a coordinate measuring machine with a rotating means [470] for rotating the work which is placed on a measuring position (as shown by arrows [PHI] on Figure 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a rotating means for rotating the work on the measuring position to the apparatus of the combination of Osburn and Matsumiya, as taught by DE004126532 A1, in order to allow measuring the form of the entire work.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osburn in view of Matsumiya as applied to claims 1-8 and 12 above, and further in view of Yoshida.

Osburn and Matsumiya together disclose a work form-measuring apparatus as claimed, as stated above in paragraph 2, but fail to disclose said machining tool and coordinate measuring means mutually exchanging a measurement enabling signal and a measurement completion signal, both of which are related to the movement of the work by said changer.

Yoshida teaches that it is very well known in the art to provide a system controller for coordinating the operation of a machining center that also includes a measuring unit, the machining units and measuring unit of the machining center of Yoshida mutually exchange

Art Unit: 2859

signals through the system controller in relation to the movement of pallets from one position to another and beginning or end of machining at a machining tool.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a system controller to the apparatus of the combination of Osburn and Matsumiya, such that said machining tool and said coordinate measuring machine mutually exchange a measurement enabling signal and a measurement completion signal related to the movement of said work by said changer, as taught by Yoshida, in order to increase the accuracy of the apparatus by programming the machining and work-form measuring process and further to store the data of the process for further analysis.

5. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osburn in view of Matsumiya and also in view of DE004126532 A1 as applied to claims 3, 6-7 and 11 above, further in view of Yoshida.

Osburn, Matsumiya and DE004126532 A1 together disclose a work form measuring apparatus as claimed, as stated above in paragraph 3, but to disclose said machining tool and coordinate measuring means mutually exchanging a measurement enabling signal and a measurement completion signal, both of which are related to the movement of the work by said changer, and further fail to disclose that said coordinate measuring means leaving a refuge position after having received a change movement completion signal, from said machining tool, and said changer starts moving said work after having received a signal of informing a coordinate measuring means refuge completion.

Yoshida teaches that it is very well known in the art to provide a system controller for coordinating the operation of a machining center that also includes a measuring unit, the

Art Unit: 2859

machining units and measuring unit of the machining center of Yoshida mutually exchange signals through the system controller in relation to the movement of pallets from one position to another and beginning or end of machining at a machining tool.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a system controller to the apparatus of the combination of Osburn and Matsumiya, as taught by Yoshida, such that said machining tool and said coordinate measuring machine mutually exchange a measurement enabling signal and a measurement completion signal related to the movement of said work by said changer and such that said coordinate measuring means leaves a refuge position after having received a change movement completion signal, from said machining tool, and said changer starts moving said work after having received a signal of informing a coordinate measuring means refuge completion, in order to increase the accuracy of the apparatus by programming the machining and work-form measuring process and further to store the data of the process for further analysis.

Response to Arguments

6. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

It should further be noted that in view of Applicant's remarks and amendments to claim 12, for examination purposes, the limitations in claim 12 related to the pallet changer and machining tool have been considered to be positive claimed.

Conclusion


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982.

Art Unit: 2859

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

LDJ
April 10, 2003



Diego F.F. Gutierrez
Supervisory Patent Examiner
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